



## Caldecott Tunnel Crew Drives to Safety Milestone

Eastbound traffic on Highway 24 at the Caldecott Tunnel begins to back up and the call goes out to switch the direction of traffic in Bore Number 2.

Tunnel workers Dennis Perry and Robert Gibbs slide behind the wheels of their trucks and they're off. Perry and Gibbs move swiftly from the Caldecott command post perched above the tunnel and out onto Highway 24.

Perry and Gibbs are charged with closing the middle bore of the three tunnels at Caldecott and redirecting traffic to serve the flood of eastbound motorists who will be heading home after a day's labor in the San Francisco Bay Area.

It is daily ritual that has been conducted since 1964 twice on weekdays and as many as six or eight times on Saturdays, Sundays and holidays.

For nearly 40 years, the changing of the traffic direction has been performed nearly



Caltrans tunnel worker Dennis Perry gives District 4 safety officer Gordon Analla a close up look at how traffic is shifted on Highway 24 at the Caldecott Tunnel.

incident free. It is a safety record of which the 37 members of the Caldecott Tunnel crew are very proud.

"Safety – both the safety of our employees and the motorists – is our highest priority and something we take very seriously," said Ray Mailhot, Superintendent of Tunnels and Tubes.

The changing of the tunnel direction is a procedure conducted, more than a thousand times each year with military-like precision. Since the third bore opened in 1964, Caltrans records show only two accidents involving the Caltrans vehicles. In both instances, the trucks were rear ended by inattentive motorists.

"The key is to be alert. My job is protect Dennis' back," said Gibbs, who this day is riding shadow for Perry. "Drivers are going very fast. Some speed past us to get into the tunnel before it is closed off. Others

are just not watching and they run right into the pop-ups."

The pop-ups operate on an air compression system. They give when struck and then pop back into place.

Perry, who has been a member of the *Caldecott Tunnel* *cont. on page 8*

## Traffic Balancing Act Plays out Smoothly on Major Southland Freeway

Problem: Major multi-lane freeway and interchange requires upgrading. The freeway carries 140,000 vehicles each day and the overcrossing serves nearly 30,000 vehicles. The interchange is the main entry point to a major amusement park attracting 5 million annual visitors, severely restricting the times construction can be done. The freeway is the major north/south commercial and recreational route for the entire west coast. There is only one alternate route. How do you keep traffic moving and construction on track?

The above scenario is one Caltrans Senior Transportation Engineers Denis Katayama and Jagdish Patel might have expected when

they were studying civil engineering at Cal State Fullerton and S.P. University in Gujarat, India respectively. The luxury of being a student would have provided the opportunity to studiously research the issue and develop a solution knowing that one pair of professorial eyes would be sitting in judgement on whether the proposed solution would work.

For Katayama, Patel and their colleagues in District 7, however, the above situation is real with a much larger classroom and a very different grading system.

Katayama and Patel are among the Caltrans engineers charged with keeping traffic flowing and construction on schedule

for the \$32 million I-5/Magic Mountain Parkway project.

"This would make a great question on a final exam. The only difference here is that we have tens of thousands of professors grading the answer on a daily basis," Katayama laughed.

Well, if mid-terms are any indication, the I-5/Magic Mountain project team is well on its way to earning an "A."

"So far, so good," said Katayama, who works in District 7 Traffic Division and was a major player in the development for the

*Traffic Balancing* *cont. on page 7*

## DIRECTOR'S CORNER



Director Jeff Morales

With the release of Gov. Gray Davis' proposed 2003/04 budget, we have a much clearer picture of the resources we will have available to us and the challenges we will face for the remainder of this year and into the next.

Over the last several years Caltrans has focused on spending all its available funds to complete transportation initiatives as early as possible. And this year we will continue to invest the maximum amount possible to move our core program forward.

In order to understand the budget situation, we should keep in mind that 2002 was a record year for mobility, one in which we put \$7 billion to work on our transportation system. We have made improvements on one of every five miles on the State Highway System. And our investments created 182,000 jobs and more than \$20 billion in economic stimulus.

After years of delay, we broke ground on the San Francisco Oakland Bay Bridge. We completed seismic retrofitting on three of the state's seven toll bridges – bringing the total to five. Two more are under construction. With increased funding to passenger rail, our three state-supported intercity rail corridors are now the second-, fourth- and fifth-busiest in country.

For the next fiscal year, the Governor has proposed a Caltrans budget that would invest about \$6.4 billion for Capital Outlay, Local Assistance and State Operations. That's 90 percent of the current budget.

## Governor Davis' Budget Offers Caltrans Challenges and Opportunities

In fact, we have more funding available than we had just four years ago.

Capital Outlay would receive approximately \$1.6 billion. Local Assistance would increase to \$1.98 billion. And State Operations are expected to get \$2.8 billion.

Of course, this budget includes cuts. And we should not trivialize either the challenges or the sacrifices we will be asked to make. But it is equally important to point out that we still have enormous resources to continue improving mobility across the state.

Consider this:

The Department's overall proposed budget is 19 percent higher than it was in Fiscal Year 1997/98. In fact, the \$6.4 billion budget is more robust than the totals for the three fiscal years between 1997 and 2000.

And while our proposed staffing level for FY 2002/03 is 6 percent lower than this year, it is higher than either FY 1997/98 or 1998/99.

At this point, we don't see a need for layoffs. Later this spring, we will consult with the Department of Finance. Those talks are expected to result in a sufficient number of staff to meet our work load. At the moment, we expect any reductions to be accomplished through normal attrition, along with reductions in overtime, operating expenses, and consulting contracts.

The Traffic Congestion Relief Program (TCRP) is in tact – although it is proposed to be suspended for 18 months. Some individual projects may move ahead through the State Transportation Improvement Program (STIP) process. We will have a clearer understanding of our workload as the California Transportation Commission (CTC) and our local transportation partners set priorities for construction projects.

Where, then, does this leave us? Whatever funding levels we may have, the Department will continue its commitment to improving mobility across California. And we will continue to work with our regional

transportation planning partners to provide a comprehensive – although leaner and more efficient – program.

The budget figures do not affect our intention to build, operate and maintain the finest multi-modal transportation system of any state in the nation. From highways to traffic management and from passenger rail to buses, light rail and ferries, we serve as the model not only for regional transportation planners and policy makers, but for the other 49 state departments of transportation to emulate.

At the same time, the Governor has challenged the Department to be an important factor in moving ahead his "Build California" initiative.

The Governor has called on the Department and the state's Resources Agency to work together to cut the environmental review process on transportation projects by as much as a year. That would allow us to deliver critical transportation improvements – and much-needed jobs – even earlier than before.

The Governor has also issued us an additional challenge.

Due to our success in delivering critical transportation improvements, the Governor has charged us with the staff work for the High-Speed Rail Commission beginning in July.

This will give us the opportunity to help develop the implementation of this exciting, high-tech initiative. And it will help to ensure that it will be fully integrated with our already successful intercity passenger rail and bus system.

So, it should be clear that the budget situation will call for the best of our professionalism. But it is also clear that we are up to that challenge. It is during such times that we are able to test ourselves, accept the realities before us and rise to levels of performance that might not have seemed possible in an earlier time.



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## Hazardous Waste Confab Zeroes in on Protecting Public, Workers

By Kathy Boltz

Research Writer

Central Region Environmental Division

Medical paraphernalia, butcher knives, crack pipes, machetes – when Caltrans hazardous waste specialists are out in the field, they never know what they'll come across. In their efforts to protect the public, workers and Caltrans projects from hazardous waste, they can run into some scary situations.

"At one site, the contractor told me to have 911 in my cell phone and be ready to dial it," a hazardous waste specialist from District 6 said. "It looked more like a crime scene than a hazardous waste site."

Caltrans specialists from around the state gathered this fall to share stories like these and learn the latest investigation techniques at the fifth annual Hazardous Waste Conference in Seaside, Monterey County.

"This is a venue for reaching all hazardous waste staff, including managers and supervisors, with the latest state of the art technical information and the latest laws affecting hazardous waste work," said Chief

of Noise, Vibration and Hazardous Waste Marge Rouch. "Everyone is hearing the same information at the same time so questions can be raised and answered that will help everyone."

This year, the conference also provided a new twist to the training; instead of one big conference room, 12 different classes were offered in three classrooms.

"The idea of breakout sessions to accomplish the majority of teaching was new this year," said Caltrans District 6 Senior Environmental Planner Gerry White, who organized the conference. "It actually allowed more subjects to be addressed and participants to choose areas of interest."

One of the most popular classes was on naturally occurring asbestos or NOA. "This is a relatively new environmental issue that is of concern in certain parts of the state," said Rouch. "The California Air Resources Board recently came out with new rules on dealing with NOA. Expert speakers came to discuss the issues and inform Caltrans employees on what they need to be aware of

when encountering NOA."

The variety of topics and informal atmosphere of the classes were a big hit with the students. "The smaller classes provided better learning conditions. They made it much easier to participate and learn," said District 7 Transportation Engineer Carol Green.

The most important aspect of the conference, however, is being able to touch bases with colleagues in other districts. "This allows staff from one district to benefit from the lessons learned in other districts, increasing our overall efficiency," said Associate Engineering Geologist Kim Christmann.

District 6 Transportation Engineer David Troop agreed that these face-to-face meetings are crucial, "The biggest issue is developing consistency across the state on lead sampling, a statewide database and a protocol for doing investigations," he explains. "We're devising guidelines to look at properties so we can assure that Caltrans will have a much lower liability in the future and that can only be done by getting together and establishing standards."

## Caltrans Shares mapping prowess in GIS Day Celebration 2002!

A celebration of geographical information systems? Maps as art? One had to wonder how maps could be considered an art form until attending the fourth annual Geographical Information Systems (GIS) Day celebration in November. California Department of Transportation (Caltrans) District 2 participated in the event, sponsored by the Redding Area GIS Users Group and held at Redding's spectacular new City Hall. The event was proof that technology and art do mix.

Geographical Information Systems (GIS) are an organized collection of computer hardware, software, geographic data and people and are designed to efficiently capture, store, update, manipulate, analyze and display all forms of geographically referenced information. Sounds very technical until you see the outcome. Beautiful mapping documents that are not only functional, but also attractive.

District 2 displayed the Intelligent Transportation System (ITS) Field Element network on several maps. The maps showed current Road Weather



Ruth Pope, GIS Coordinator/Web Administrator

Information Systems (RWIS), Closed Circuit Television Cameras (CCTV), Highway Advisory Radios (HAR) and Changeable Message Signs (CMS), located on highways in the district.

Because Caltrans references all state highways by a measurement called post-miles, the Postmiler application was used as a part of the District 2 GIS display to map the ITS Field Elements. Developed by Caltrans, the Postmiler application gives the GIS user community the ability to display any information or event that happens along road-

ways. The application verifies the data against the most current state highway postmile database for accuracy of location.

Geographic Information Systems are becoming the focal point for accessing, and better understanding all kinds of data collected in our society today. Presentations during the day-long event included using GIS to interact with crime data, property information, record of surveys, census information, utilities, zoning and vegetation plots. Real-time stream conditions, fish surveys, college campus engineering diagrams and Madagascar deforestation were displayed. Aerial photography, real-time traffic cameras, and traffic accidents were also covered.

In addition to the presentations and displays by organizations such as Caltrans, the Redding Police Department, the City of Redding, Fish and Game, Public Health and Shasta College; GIS documents were displayed as artwork on the third floor of the Civic Center.

Maps as art? Who would have guessed?



## Freshly Painted Tower Bridge Glistens in Gold Over Capital City

Sacramento's historic Tower Bridge, sporting a new coat of paint, is once again back in business.

The 67-year-old bridge reopened days before Thanksgiving in time for the busy holiday shopping season.

In January 2002, residents of metropolitan Sacramento voted on the bridge's color. With more than 43,000 votes, the public chose metallic gold.

Painters began work in February on the structure. On each section of the bridge, they installed a containment system, erected scaffolding and pressure washed old paint and debris. The 356,000 square-foot surface area of the bridge was painted three times (one coat for primer and two finish coats. The protective coating is expected to last as long as 30 years.

About 95 percent of the work has been completed. The "finishing touches" underneath the center lift span of the bridge will continue until late March. More than 5,000 gallons of paint will be used to cover the bridge.

The Tower Bridge, a Streamline-Moderne-style structure, was painted aluminum silver when completed in December 1935 at a cost of about \$1 million. The bridge was repainted a shade of ochre in 1977. Repainting the bridge metallic gold will cost \$3.5 million.

The Tower Bridge is 738 feet long and is listed in the National Historic Register of Places and California Register of Historic Places.

## 511 Transit Information Service Aids Bay Area Travelers

A 511 transportation information service has been launched in the San Francisco Bay Area – the first of its kind in a metropolitan area in the nation.

The service is intended for travelers wanting information about traffic conditions, transit schedules or transit options. Callers can dial 511 from any phone in the nine Bay Area counties. The voice-activated serv-

ice will provide prompts that lead users to the needed information.

Calls are connected to transit information lines or to the Caltrans Transportation Management Center in Oakland, which provide current information about getting around the Bay Area. In addition, callers can find out about van pooling and carpooling service, bicycle route information and lane

closures planned on the area's state highways.

The Center is a joint operation of Caltrans, the California Highway Patrol and the Metropolitan Transportation Commission.

The 511 service is available in Santa Clara, San Mateo, Alameda, San Francisco, Contra Costa, Marin, Napa, Sonoma and Solano counties.

# Caltrans Takes Engineering Message Back to School

*“Engineering is a great profession. There is the fascination of watching a figment of the imagination emerge through the aid of science to a plan on paper. Then it moves to realization in stone or metal or energy. Then it brings homes to men or women. Then it elevates the standard of living and adds to the comforts of life. This is the engineer’s high privilege.”*

**Herbert Hoover**

*President of the United States from 1929-1932*

California Department of Transportation (Caltrans) engineers are going back to school.

Through its Adopt-A-School Program, Caltrans is reaching out to elementary, middle and high school students across the state to tell them about various career opportunities in the transportation industry.

So far, the department has adopted 21 schools, including 15 high schools, five middle schools and one elementary school. Each of Caltrans’ 12 districts has adopted one or more schools.



*Rosana Pea, Caltrans Transportation Engineer (bottom far left) and Adopt-A-School Program Administrator, Kelly Hassenplug (bottom far right), work closely with Sacramento High School Engineering Club students and AASHTO national trainer, Tate Jackson (top far right) as part of the department’s Adopt-A-School Program.*

“Our aim is to let students know that Caltrans, as the second largest department in the State of California, has vast career opportunities. Engineering (civil), however, continues to be the most difficult position to recruit. We let students know that engineering can be a very exciting and rewarding profession,” said Kelly Hassenplug, Adopt-A-School Program administrator.

With a multi-billion dollar program of transportation improvements planned over the coming years, Caltrans will have an ongoing need for more engineers. “The competition for engineers graduating from college is tough,” said Hassenplug. “The Adopt-A-School Program is a long term recruitment strategy that affords Caltrans the opportunity to partner with education and introduce elementary, middle and high school students to careers in transportation.”

A key component of the effort is the Transportation and Civil Engineer Careers Program, which is sponsored by the American Association of State Highway and Transportation Officials (AASHTO). The program utilizes a Transportation Research Activities Center (TRAC), which is a self-contained laboratory designed for teams to take into the classroom. It contains a mini-lab of electronic equipment and allows students to conduct real engineering experiments. Schools participating in the program include:

Dist	School and County
HQ	Florin, C.K. McClatchy and Sacramento high schools in Sacramento County
1	Eureka High School in Humboldt County
2	Central Valley High School in Shasta County
3	Lindhurst High School and Andros Karperos Middle School in Yuba City
	Noralto Elementary in Sacramento County
	Toby Johnson Middle School in Elk Grove
4	Richmond High School in Contra Costa County
5	Flamson High School in Paso Robles
6	Roosevelt High School in Fresno County
7	Franklin High School in Los Angeles County
8	Canyon Springs High School and Vista Heights Middle School in San Bernardino County
9	Bishop High School in Mono County
10	Edison High School in San Joaquin County
11	Clairemont High School in San Diego County
12	Irvine High School in Orange County

If you are interested in becoming a volunteer, contact Kelly Hassenplug at (916) 227-5334, Calnet 8-498-5334.

## Inland Empire, Los Angeles Drivers Get Holiday Present

Drivers in the Inland Empire and eastern Los Angeles received a long-awaited present just in time for the holidays with the opening of 14 miles of the Foothill Freeway (State Route 210) from Foothill Boulevard in the city of La Verne in Los Angeles County to Day Creek Boulevard in Rancho Cucamonga, San Bernardino County.

The route was opened November 24, just in time for travel over the Thanksgiving and Christmas holidays.

The new \$689 million freeway will remove some 43,000 vehicles daily from local streets such as Baseline Road,

Foothill Boulevard, Highland Avenue, 19th Street and Mountain Avenue. It will reduce congestion, air emissions and commute time; and improve mobility and safety.

The Foothill Freeway corridor stretches some 28.2 miles through the cities of La Verne, Claremont, Upland, Rancho Cucamonga, Fontana and Rialto. The freeway has been planned since 1949.

This newly completed 14-mile portion includes eight lanes of freeway (three mixed-flow lanes and one carpool, lane) in each direction with space for future widening in the median. Also included

are 49 new structures, 14 local street interchanges, one freeway-to-freeway interchange, retaining walls, soundwalls and landscaping. Last year, 6.2 miles of freeway between Day Creek Boulevard in Rancho Cucamonga and Sierra Avenue in Fontana were opened.

The \$689 million project was funded through a combination of sources: \$486 million state funds (\$351 million of this programmed through LACMTA); \$194 million from Measure I, San Bernardino County 1/2-cent sales tax administered by SANBAG; and \$9 million Proposition C, LACMTA).

## Caltrans Provides North State Winter Road Conditions on Internet

Drivers planning to travel across the north state this winter will have more information at their disposal.

Thanks to the Caltrans District 2 web site, travelers will be able to access winter road conditions with the click of a computer to find out if it is snowing in Mt. Shasta or what the weather is like on Highway 299 near Buckhorn Mountain.

Internet users can now click on the District 2 Caltrans website at [www.dot.ca.gov/dist2](http://www.dot.ca.gov/dist2) and see the most current weather and/or road conditions at different locations around the seven north-eastern counties of California by selecting the appropriate menu selection.

"Information is power. Our goal is to provide the best service we can to our customers. By giving travelers as much information as possible, they can make their travel plans or adjust them to meet their specific needs," said Larry Orcutt, acting District 2 Director.

Closed Circuit TV (CCTV) images and real time weather conditions are available at many locations for travelers, emergency responders and stay-at-home weather watchers.

Funded by a grant from the California Oregon Advanced Transportation System (COATS) project through the Division of Research and Innovation and by state highway funds, still images which are updated hourly, are transmitted to the District 2 Traffic Management Center (TMC) and from there are posted to the district's website for public viewing.

There are 23 different CCTV's available, ranging from Hilt near the Oregon border on Interstate 5 and several locations in and around the greater Redding area to the top of Oregon Mountain, west of

Weaverville on Highway 299 to the Town Hill site, just west of Susanville on Highway 36. Additional sites will be added in the future.

The Caltrans website has also incorporated the Roadside Weather Information System (RWIS) as a tool for the public to use in looking for the current weather conditions. A menu selection will direct web users to nine locations around the district where RWIS utilizes meteorological measurement stations located alongside the roadway to collect current pavement and atmospheric data.



Sensors placed below the pavement surface and on towers well above the roadway relay data such as air temperature, wind speed, types of precipitation and whether there is snow, ice or frost on the roadway.

Information gathered from the RWIS equipment allows the Caltrans Traffic Operations and Maintenance staff to make informed decisions concerning response measures during winter storms. These weather stations allow Caltrans to make responsible forecasts regarding

the impact winter storms may have on highways.

The road sensors also inform maintenance personnel of road conditions and existing concentrations of deicing chemicals, such as salt, to help them determine when the road surface may freeze. This tool gives Caltrans Maintenance crews the most current information needed to make optimal use of materials and staff.

By reporting on a relatively small area, the system can give drivers detailed information about conditions in their immediate vicinity. The information provided allows travelers to make informed decisions and planning prior to setting out on the travels.

*Traffic Balancing* *cont. from page 1*

Transportation Management Plan for the I-5/Magic Mountain Parkway project.

“Our aim is to find that balance that best serves the traveling public and allows the construction work to proceed,” he said.

The I-5/Magic Mountain Parkway is a good example of the challenge facing Caltrans across the state where the need to keep traffic moving and improvements to a major transportation artery collide.

“I-5 is a major commercial truck route, the main link between northern and southern California. The Magic Mountain amusement park is a major destination point. The area served by the interchange is an industrial center and rapid growth is occurring in the surrounding area,” said Katayama. “We have one alternate, ‘The Old Road,’ that carries traffic from the freeway past Magic Mountain and around the work area. You have all the ingredients for a traffic nightmare.”

The work required taking one of the four lanes in both directions on the freeway.

Working with the local community for more than two years, Caltrans District 7 developed a transportation management plan including a major public awareness campaign urging motorists to adjust their travel plans.

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**“THIS WOULD MAKE A GREAT QUESTION ON A FINAL EXAM. THE ONLY DIFFERENCE HERE IS THAT WE HAVE TENS OF THOUSANDS OF PROFESSORS GRADING THE ANSWER ON A DAILY BASIS,” KATAYAMA LAUGHED.**

■ ■ ■

The effort has paid off, according to Katayama, with delays minimized.

With the exception of the Labor Day weekend, when a raging brush fire was a major cause of delays, traffic has been moving smoothly through the I-5/Magic Mountain work area.

Even over Thanksgiving, one of the heaviest travel weekends of the year, the delay was only about 36 minutes at its worst.

“The performance has been good but we always worry about holidays. We urge motorists especially during the holidays to leave early, allow plenty of time for their trip and if possible to choose another route,” said Katayama said.

The project includes replacing the bridges at the I-5/Highway 126 (better



*Tourists may prefer the “wild rides” at the Magic Mountain Amusement Park, but Caltrans engineers do their best to keep tourist traffic visiting the park moving but calm on the nearby Interstate 5 project.*

known as Magic Mountain Parkway) and the Santa Clara River and widening the freeway shoulders.

“We are pleased so far with the way things are progressing. Traffic is flowing and construction is moving forward on schedule,” said Patel, the resident engineer on the I-5 Magic Mountain Parkway project.

Patel is quick to credit the advance work done by district staff, its local partners and the CHP.

“The detours were planned well in advance in coordination with our partners. The district has put in place an aggressive public awareness campaign to keep the public and our partners informed of upcoming work and the impact on traffic. The accomplished work is a good example of team work,” said Patel, a 12-year veteran of the department.

The result has been very few complaints from motorists. In fact, most of the questions received by the project staff have dealt with why motorists do not see much activity during the day. The answer: the majority of the work is performed at night to minimize the impact on traffic.

With a solid mid-term grade in pocket, the project team now sets its sights on the finals.

Construction is scheduled for completion in the winter of 2004.

## Exams Schedule

**The Caltrans Examination Office is providing the following examination information for January:**

- Accounting Officer (Specialist)
- Associate Environmental Planner (Natural Sciences)
- Caltrans Heavy Equipment Mechanic Leadworker
- Research Program Specialist I

**The following examinations allow for continuous filing:**

- Accountant Trainee
- Caltrans Electrical Technician
- Caltrans Electrician I
- Caltrans Electrician II
- Caltrans Heavy Equipment Mechanic
- Deputy Attorney, Caltrans
- Deputy Attorney III & IV Caltrans
- Structural Design Technician I
- Transportation Engineering Technician
- Transportation Surveyor, Caltrans
- Transportation Surveyor – Party Chief, Caltrans

**The following examinations allow for continuous filing on the Internet:**

- Environmental Planner (Natural Science)
- Landscape Associate
- Senior Environmental Planner
- Senior Right of Way Agent
- Senior Transportation Engineer, Caltrans
- Transportation Engineer (Civil)
- Transportation Engineer (Electrical)
- Transportation Planner

**Visit the Caltrans website at [www.dot.ca.gov/hq/jobs](http://www.dot.ca.gov/hq/jobs) for open, promotional, CEA and MSDP Examinations.**



*Dennis Perry, above, makes sure all systems are go. Teamwork is the key to making a safe lane switch in the three-bore Caldecott Tunnel.*

**Caldecott Tunnel** *cont. from page 1*

Caldecott crew since 1980, said teamwork is critical. "You have to be focused on what you're doing and stay alert to what is happening around you. Even then, you are always at risk" said Perry, whose father, a retired highway patrol officer, was rearended while on duty on the San Francisco-Oakland Bay Bridge.

Each weekday around 11:30 a.m., the decision is made to switch the direction in Bore Number 2 to serve eastbound travelers. The direction will be switched back to westbound traffic around 9 p.m. On weekends, the schedule is adjusted as needed depending on traffic flow.

For example on the Saturday when the "Big Game" between the Cal and Stanford football teams is played in Berkeley, the direction of the tunnel may be changed twice in the span of a couple hours. "It all depends on traffic. Our job is to keep traffic moving. Sometimes it will get a little crazy but it's okay as long as Cal wins," laughed Gibbs, a native of the east Bay Area and a six-year veteran of the Caldecott crew.

The crews also close off each of the tunnels for cleaning and routine maintenance.

Perry and Gibbs drive their rigs through the tunnel east about four miles to Saint Stephens Drive. With changeable message

signs raised, the pair moves onto westbound Highway 24, working their way to the median.

Using a hand-held controller that resembles an oversized garage door opener, Perry activates the overhead changeable message signs that let westbound drivers know that Bore Number 2 will no longer be in use. Perry proceeds down the freeway, activating a series of banks of pop-up tubes that are used to direct westbound traffic away from the entrance to Bore Number 2.

Gibbs, as the shadow vehicle, guard's Perry's back from fast moving traffic heading west-

bound on Highway 24 and makes sure all the pop up tubes are deployed. Gibbs fires off flares every 50 to 100 yards to help alert motorists to the procedure in process. The Caldecott crew will fire off an average of 100 flares a day.

As Perry nears the entrance to Bore Number 2, he activates a steel cable barrier that rises gently from the pavement, a last line of defense to prevent westbound motorists from inadvertently straying into the now closed tunnel.

The cable barrier system was adapted from one used by the Navy on aircraft carriers to keep multi-million dollar fighter jet fighters from overshooting the runway and ending up in the ocean.

"We've had people hit it but never drove through it," said Perry.

Perry and Gibbs move on through Bore Number 2, checking for any debris or stalled vehicles. They also look for damaged pop ups and any leaks in the air compression system.

"We make sure everything is ready to go so that traffic can safely be redirected from the eastbound lanes into the tunnel," said Gibbs.

With the all clear, Perry activates the controls to lower the cable barrier and the pop up tubes on the western end of the Caldecott Tunnel.

From start to finish, the procedure takes about 45 minutes.

Perry, Gibbs and their colleagues, when not making the traffic switch, maintain the three bores including the pop up tube system.

The daily traffic changing of the guard at Caldecott could be headed for the history books as momentum continues to build for construction of a fourth bore.

Governor Davis' Traffic Congestion Relief Program included \$20 million for a study and preliminary design of a fourth bore at Caldecott.

Until a fourth bore is built, the Caldecott crew will continue to switch traffic safely and as often as needed.

Mailhot said Caldecott's impressive safety record is a team effort. The members of the crew include:

Supervisors: Clyde Barker, Robert del Barrio, John Dodson, Mike Hart, Randy Barker and Louie Herce.

Crew members: Doug Lavalley, Chuck Allen, Tim Miller, Dave Angell, Dave Rogers, Raj Paintel, Dave Salazar, Dave Seifried, Don Caldwell, Ed Coppin, Barry Gordon, Billy Baylosis, Miguel Fianza, and Al Thomas.

Dennis Perry, Phil Morales, Elizabeth Buie, George Houchens, Rey Fadrigio, Robert Gibbs, Mike Kelly, Charles O' Neill, Tom Shuster, Alan Markham, Tony Padilla, Charles Padilla, Bob Reed, Jim Brown, Glenn Lucas and Ernie Morales.

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